



# Full wwPDB X-ray Structure Validation Report ⓘ

Sep 18, 2017 – 04:57 AM EDT

PDB ID : 3O5B  
Title : Crystal structure of dimeric KIHxk1 in crystal form VII with glucose bound (open state)  
Authors : Kuettner, E.B.; Kettner, K.; Keim, A.; Kriegel, T.M.; Strater, N.  
Deposited on : unknown  
Resolution : 1.97 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

---

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.7.2 (RC1), CSD as538be (2017)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20029824  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : rb-20029824

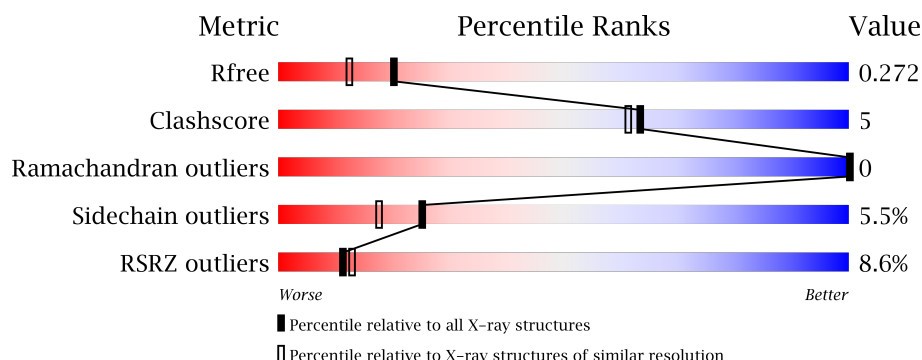
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 1.97 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	100719	9293 (2.00-1.96)
Clashscore	112137	10621 (2.00-1.96)
Ramachandran outliers	110173	10502 (2.00-1.96)
Sidechain outliers	110143	10501 (2.00-1.96)
RSRZ outliers	101464	9395 (2.00-1.96)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	485	<div> <div>5%</div> <div>86%</div> <div>12%</div> <div>..</div> </div>
1	B	485	<div> <div>12%</div> <div>84%</div> <div>14%</div> <div>..</div> </div>

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	BGC	A	486	-	-	-	X
2	BGC	B	486	-	-	-	X

## 2 Entry composition [i](#)

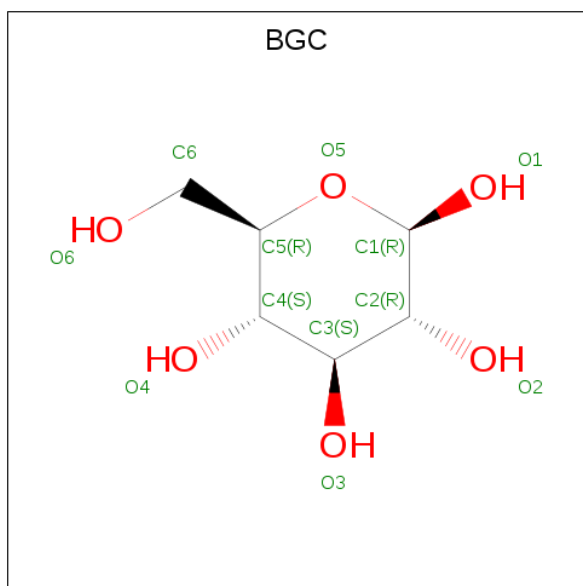
There are 4 unique types of molecules in this entry. The entry contains 7851 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Hexokinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	479	Total	C	N	O	S	0	2	0
			3736	2377	618	725	16			
1	B	478	Total	C	N	O	S	0	2	0
			3723	2368	616	723	16			

- Molecule 2 is BETA-D-GLUCOSE (three-letter code: BGC) (formula:  $C_6H_{12}O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			12	6	6		
2	B	1	Total	C	O	0	0
			12	6	6		

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula:  $O_4S$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		

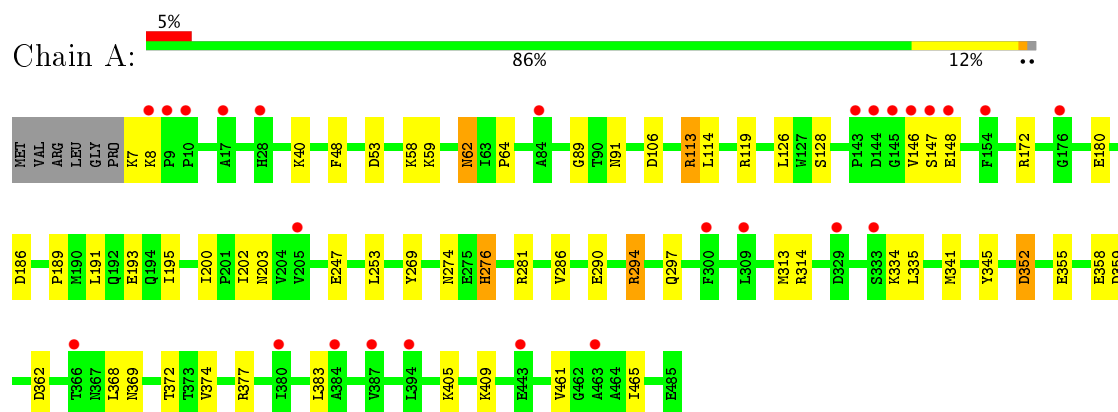
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	211	Total	O	0	0
			211	211		
4	B	142	Total	O	0	0
			142	142		

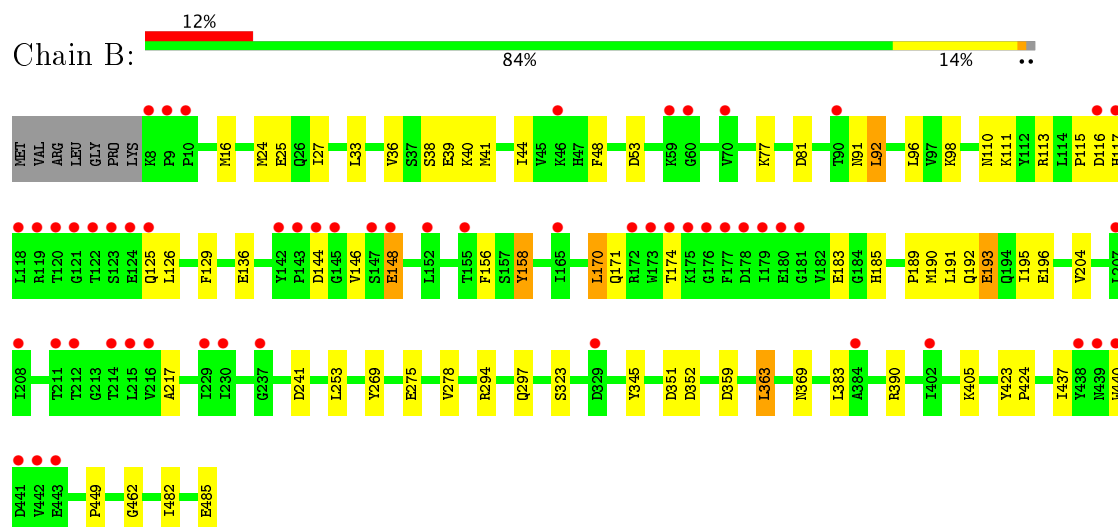
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

#### • Molecule 1: Hexokinase



#### • Molecule 1: Hexokinase



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	98.14 Å 122.20 Å 92.30 Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.90 – 1.97 29.68 – 1.97	Depositor EDS
% Data completeness (in resolution range)	99.6 (29.90-1.97) 99.6 (29.68-1.97)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.04	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.11 (at 1.96 Å)	Xtriage
Refinement program	REFMAC 5.5.0109	Depositor
R, $R_{free}$	0.204 , 0.255 0.222 , 0.272	Depositor DCC
$R_{free}$ test set	1149 reflections (1.46%)	DCC
Wilson B-factor (Å <sup>2</sup> )	30.3	Xtriage
Anisotropy	0.619	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 36.1	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	7851	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	39.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.39% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: BGC, SO4

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z  > 5$	RMSZ	$\# Z  > 5$
1	A	0.83	0/3817	0.83	2/5167 (0.0%)
1	B	0.72	2/3809 (0.1%)	0.79	0/5156
All	All	0.78	2/7626 (0.0%)	0.81	2/10323 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	39	GLU	CD-OE2	6.59	1.32	1.25
1	B	39	GLU	CG-CD	6.25	1.61	1.51

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	186	ASP	CB-CG-OD1	5.56	123.31	118.30
1	A	352	ASP	CB-CG-OD1	5.01	122.81	118.30

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3736	0	3732	34	0
1	B	3723	0	3710	42	0

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	12	0	9	0	0
2	B	12	0	12	0	0
3	A	10	0	0	1	0
3	B	5	0	0	0	0
4	A	211	0	0	4	0
4	B	142	0	0	1	0
All	All	7851	0	7463	74	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (74) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:191:LEU:HD12	1:B:204:VAL:HG21	1.43	0.96
1:B:345:TYR:CE2	1:B:363:LEU:HD21	2.13	0.83
1:A:313:MET:HG2	1:A:383:LEU:HD22	1.63	0.81
1:B:191:LEU:CD1	1:B:204:VAL:HG21	2.15	0.77
1:A:355:GLU:HB2	1:B:110:ASN:HD21	1.47	0.77
1:A:58:LYS:HG3	1:A:247:GLU:HG2	1.71	0.71
1:A:59:LYS:HG3	4:A:584:HOH:O	1.91	0.70
1:A:313:MET:HG2	1:A:383:LEU:CD2	2.23	0.68
1:B:185:HIS:HB2	1:B:190:MET:CE	2.23	0.68
1:B:91:ASN:HD22	1:B:113:ARG:HA	1.59	0.66
1:A:358:GLU:HG3	1:B:111:LYS:O	1.98	0.64
1:A:7:LYS:HA	4:A:626:HOH:O	1.98	0.64
1:B:294:ARG:HB3	1:B:297:GLN:HG3	1.82	0.62
1:A:189:PRO:O	1:A:193:GLU:HG2	2.00	0.62
1:B:345:TYR:CE2	1:B:363:LEU:CD2	2.84	0.60
1:B:41:MET:HE2	1:B:437:ILE:HD11	1.83	0.59
1:A:146:VAL:HG13	1:A:148:GLU:O	2.03	0.58
1:B:192:GLN:O	1:B:196:GLU:HG2	2.04	0.58
1:A:62:ASN:HD21	1:A:274:ASN:ND2	2.02	0.57
1:A:53:ASP:OD1	1:A:405:LYS:HE2	2.05	0.57
1:A:374:VAL:HG23	4:A:619:HOH:O	2.04	0.57
1:B:53:ASP:OD1	1:B:405:LYS:HE2	2.06	0.55
1:A:286:VAL:O	1:A:290:GLU:HG3	2.06	0.55
3:A:487:SO4:O3	3:A:488:SO4:O2	2.23	0.55
1:A:146:VAL:CG1	1:A:148:GLU:O	2.54	0.55
1:B:91:ASN:ND2	1:B:113:ARG:HA	2.22	0.54
1:B:185:HIS:HB2	1:B:190:MET:HE1	1.88	0.53

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:36:VAL:CG2	1:B:390:ARG:HG3	2.39	0.53
1:B:217:ALA:HB2	1:B:462:GLY:HA2	1.92	0.51
1:A:355:GLU:HB2	1:B:110:ASN:ND2	2.22	0.51
1:B:81:ASP:OD1	1:B:98:LYS:HG2	2.10	0.51
1:B:92:LEU:C	1:B:92:LEU:HD12	2.31	0.51
1:A:383:LEU:HD23	1:A:383:LEU:O	2.11	0.50
1:B:170:LEU:CD1	1:B:183:GLU:HG2	2.42	0.49
1:B:217:ALA:HB2	1:B:462:GLY:CA	2.42	0.49
1:A:383:LEU:C	1:A:383:LEU:HD23	2.33	0.49
1:A:91:ASN:HD22	1:A:113:ARG:HA	1.78	0.49
1:B:352:ASP:CG	1:B:359:ASP:HB2	2.33	0.48
1:A:276:HIS:HB3	1:A:281:ARG:HD3	1.94	0.48
1:A:341:MET:HG2	1:A:345:TYR:CD2	2.49	0.48
1:A:274:ASN:O	1:A:276:HIS:CE1	2.67	0.47
1:B:96:LEU:HD21	1:B:98:LYS:HE3	1.97	0.47
1:A:314:ARG:HD2	1:A:335:LEU:O	2.15	0.47
1:B:191:LEU:C	1:B:191:LEU:HD13	2.35	0.47
1:A:409:LYS:HB3	1:A:409:LYS:HE3	1.57	0.47
1:B:189:PRO:O	1:B:193:GLU:HG3	2.16	0.46
1:A:195:ILE:HG23	1:A:200:ILE:HB	1.98	0.46
1:A:200:ILE:HG21	1:A:202:ILE:HD12	1.98	0.46
1:A:294:ARG:NH1	1:A:297:GLN:HG3	2.31	0.46
1:A:352:ASP:CG	1:A:359:ASP:HB2	2.37	0.45
1:B:38:SER:HB2	4:B:567:HOH:O	2.16	0.45
1:B:36:VAL:HG23	1:B:390:ARG:HG3	1.98	0.45
1:B:146:VAL:HG13	1:B:148:GLU:O	2.16	0.45
1:B:423:TYR:HA	1:B:424:PRO:HD3	1.85	0.44
1:B:482:ILE:HG13	1:B:485:GLU:HG2	2.00	0.44
1:A:89:GLY:O	1:A:119:ARG:HD3	2.18	0.44
1:B:440:TRP:CD2	1:B:449:PRO:HD2	2.53	0.44
1:A:91:ASN:HD21	1:A:113:ARG:HG2	1.83	0.44
1:B:115:PRO:HB2	1:B:117:HIS:CE1	2.53	0.43
1:A:334:LYS:HD2	1:A:368:LEU:HA	2.01	0.43
1:B:191:LEU:HD11	1:B:195:ILE:HD11	2.00	0.43
1:B:185:HIS:HB2	1:B:190:MET:HE3	2.00	0.43
1:A:334:LYS:HB2	1:A:334:LYS:HE3	1.65	0.42
1:A:372:THR:OG1	1:A:377:ARG:HD3	2.20	0.42
1:B:36:VAL:HG12	1:B:41:MET:HG3	2.02	0.42
1:B:40:LYS:O	1:B:44:ILE:HG13	2.20	0.42
1:B:156:PHE:HE2	1:B:170:LEU:HD23	1.85	0.41
1:B:44:ILE:HG12	1:B:278:VAL:HG12	2.03	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:16:MET:CE	1:B:27:ILE:HD13	2.51	0.41
1:A:203:ASN:HB2	4:A:566:HOH:O	2.20	0.41
1:B:115:PRO:HD3	1:B:129:PHE:CE1	2.56	0.41
1:B:241:ASP:OD2	1:B:405:LYS:NZ	2.39	0.41
1:A:461:VAL:O	1:A:465:ILE:HG13	2.20	0.40
1:B:158:TYR:CD1	1:B:158:TYR:N	2.88	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	479/485 (99%)	461 (96%)	18 (4%)	0	100	100
1	B	478/485 (99%)	459 (96%)	19 (4%)	0	100	100
All	All	957/970 (99%)	920 (96%)	37 (4%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	409/412 (99%)	389 (95%)	20 (5%)	29	21
1	B	408/412 (99%)	383 (94%)	25 (6%)	22	14

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
All	All	817/824 (99%)	772 (94%)	45 (6%)	25	18

All (45) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8	LYS
1	A	40	LYS
1	A	48	PHE
1	A	62	ASN
1	A	64	PRO
1	A	106	ASP
1	A	113	ARG
1	A	114	LEU
1	A	126	LEU
1	A	128	SER
1	A	147	SER
1	A	172	ARG
1	A	180	GLU
1	A	191	LEU
1	A	253	LEU
1	A	269	TYR
1	A	276	HIS
1	A	294	ARG
1	A	362	ASP
1	A	369	ASN
1	B	24	MET
1	B	25	GLU
1	B	33	LEU
1	B	48	PHE
1	B	77	LYS
1	B	92	LEU
1	B	116	ASP
1	B	125	GLN
1	B	126	LEU
1	B	136	GLU
1	B	144	ASP
1	B	148	GLU
1	B	158	TYR
1	B	170	LEU
1	B	171	GLN
1	B	174	THR
1	B	193	GLU

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	B	253	LEU
1	B	269	TYR
1	B	275	GLU
1	B	323	SER
1	B	351	ASP
1	B	363	LEU
1	B	369	ASN
1	B	383	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	62	ASN
1	A	91	ASN
1	A	369	ASN
1	B	91	ASN
1	B	110	ASN
1	B	117	HIS
1	B	471	GLN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

5 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link

column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	BGC	A	486	-	12,12,12	0.60	0	17,17,17	2.75	10 (58%)
3	SO4	A	487	-	4,4,4	0.12	0	6,6,6	0.67	0
3	SO4	A	488	-	4,4,4	0.22	0	6,6,6	0.39	0
2	BGC	B	486	-	12,12,12	0.61	0	17,17,17	2.66	7 (41%)
3	SO4	B	487	-	4,4,4	0.39	0	6,6,6	0.76	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	BGC	A	486	-	-	0/2/22/22	0/1/1/1
3	SO4	A	487	-	-	0/0/0/0	0/0/0/0
3	SO4	A	488	-	-	0/0/0/0	0/0/0/0
2	BGC	B	486	-	-	0/2/22/22	0/1/1/1
3	SO4	B	487	-	-	0/0/0/0	0/0/0/0

There are no bond length outliers.

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	486	BGC	C4-C3-C2	-4.88	102.23	110.84
2	A	486	BGC	C1-C2-C3	-4.59	102.36	110.65
2	A	486	BGC	C4-C3-C2	-3.79	104.15	110.84
2	B	486	BGC	C1-C2-C3	-3.63	104.09	110.65
2	A	486	BGC	C6-C5-C4	-2.24	107.75	113.00
2	A	486	BGC	O1-C1-C2	2.03	115.16	109.42
2	A	486	BGC	O4-C4-C3	2.06	114.83	110.36
2	B	486	BGC	O2-C2-C1	2.18	114.29	109.75
2	A	486	BGC	O5-C1-C2	2.27	113.81	110.04
2	A	486	BGC	O3-C3-C2	2.31	115.39	110.36
2	B	486	BGC	O3-C3-C4	2.36	115.49	110.36
2	A	486	BGC	O3-C3-C4	2.87	116.59	110.36
2	B	486	BGC	O5-C5-C4	2.96	115.11	109.66
2	A	486	BGC	O2-C2-C1	3.29	116.59	109.75
2	B	486	BGC	O4-C4-C3	3.96	118.97	110.36

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	486	BGC	C1-O5-C5	6.21	124.60	113.39
2	A	486	BGC	C1-O5-C5	6.70	125.47	113.39

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	487	SO4	1	0
3	A	488	SO4	1	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	479/485 (98%)	0.59	26 (5%) 26 29	18, 33, 65, 85	0
1	B	478/485 (98%)	0.79	56 (11%) 5 6	23, 40, 73, 103	0
All	All	957/970 (98%)	0.69	82 (8%) 11 13	18, 36, 69, 103	0

All (82) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	177	PHE	5.6
1	A	144	ASP	5.2
1	B	143	PRO	5.0
1	B	174	THR	4.9
1	B	144	ASP	4.8
1	B	8	LYS	4.7
1	B	60	GLY	4.6
1	A	8	LYS	4.5
1	B	147	SER	4.5
1	B	208	ILE	4.2
1	A	9	PRO	3.9
1	B	179	ILE	3.8
1	B	120	THR	3.8
1	B	116	ASP	3.8
1	B	441	ASP	3.8
1	B	181	GLY	3.7
1	A	146	VAL	3.6
1	B	180	GLU	3.6
1	A	10	PRO	3.5
1	B	148	GLU	3.5
1	B	9	PRO	3.5
1	B	59	LYS	3.4
1	B	442	VAL	3.3
1	B	443	GLU	3.3

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	B	119	ARG	3.3
1	A	145	GLY	3.1
1	B	176	GLY	3.1
1	B	215	LEU	3.0
1	A	176	GLY	3.0
1	B	229	ILE	3.0
1	A	309	LEU	2.9
1	B	46	LYS	2.9
1	B	440	TRP	2.9
1	A	148	GLU	2.9
1	B	230	ILE	2.9
1	A	366	THR	2.9
1	B	178	ASP	2.9
1	A	17	ALA	2.8
1	B	124	GLU	2.8
1	B	118	LEU	2.8
1	B	172	ARG	2.7
1	B	212	THR	2.7
1	A	147	SER	2.7
1	B	207	LEU	2.7
1	B	90	THR	2.7
1	B	125	GLN	2.6
1	B	237	GLY	2.6
1	A	84	ALA	2.5
1	A	443	GLU	2.5
1	A	329	ASP	2.5
1	B	10	PRO	2.5
1	B	329	ASP	2.4
1	A	143	PRO	2.4
1	A	300	PHE	2.4
1	B	142	TYR	2.4
1	B	216	VAL	2.4
1	A	394	LEU	2.3
1	B	152	LEU	2.3
1	B	123	SER	2.3
1	B	175	LYS	2.3
1	B	122	THR	2.3
1	B	145	GLY	2.3
1	B	70	VAL	2.3
1	B	155	THR	2.3
1	A	28	HIS	2.3
1	B	438	TYR	2.2

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	A	384	ALA	2.2
1	A	154	PHE	2.2
1	B	214	THR	2.2
1	A	387	VAL	2.2
1	A	380	ILE	2.2
1	B	165	ILE	2.2
1	B	117	HIS	2.1
1	A	463	ALA	2.1
1	B	439	ASN	2.1
1	B	121	GLY	2.1
1	A	205	VAL	2.1
1	A	333	SER	2.0
1	B	384	ALA	2.0
1	B	173	TRP	2.0
1	B	402	ILE	2.0
1	B	211	THR	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

## 6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
2	BGC	B	486	12/12	0.74	0.40	4.79	27,37,42,46	12
2	BGC	A	486	12/12	0.76	0.26	3.85	26,33,40,42	12
3	SO4	A	487	5/5	0.90	0.15	1.14	22,31,37,37	5
3	SO4	B	487	5/5	0.90	0.16	0.45	22,26,37,39	5
3	SO4	A	488	5/5	0.78	0.30	-	25,29,33,41	5

## 6.5 Other polymers [i](#)

There are no such residues in this entry.